

REMARKS/ARGUMENTS

By this paper, Applicant responds to the Office Action of September 30, 2005 and respectfully requests reconsideration of the application. The shortened statutory period runs through December 30, 2005. Accordingly, this response is timely.

Claims 1-83 are now pending, a total of 83 claims. Claims 1, 5, 33, 56 and 79 are independent.

I. § 112 ¶ 1 Issues

Paragraph 3 of the Office Action asks a “written description” question with respect to claims 52, 79 and 83. The Office Action is insufficient to raise any rejection.

MPEP § 2163(I)(A) instructs that “There is a strong presumption that an adequate written description of the claimed invention is present when the application is filed.” MPEP § 2163.04(I)(B) instructs that the examiner “must set forth express findings of fact which support the lack of written description,” by “providing a reason why person skilled in the art ... would not have recognized that the inventor was in possession of the invention as claimed.” Applicant notes that the claim language discussed in ¶ 3 of the Office Action is either unamended or only slightly modified from original filing, and thus presumptively meets the written description requirement. To overcome this presumption, an Office Action must set forth a highly-persuasive explanation. The *pro forma* explanation set forth in the Office Action is only permitted with respect to a “new or amended claim,” MPEP § 2163.04(I)(B), which does not apply to claims 52 and 79.

Nonetheless, in order to advance prosecution, Applicant notes that the language finds written description support at page 7, lines 16-21, page 99, line 22 to page 100, line 2, and page 104, lines 11-14 of the application as filed.

II. § 112 ¶ 2 Issues

Paragraph 4 of the Office Action notes that “the operating system,” “the thread scheduler,” etc. unambiguously relate to earlier language in the respective claims. The Office Action makes no showing that the indicated claim language could reasonably be interpreted in more than one way. Instead, the Office Action shows that the claims are clear and definite. No

further showing is required from Applicant. Further, the Appeal Conference confirmed that when claim terms have unambiguous antecedent basis, as exists here, no § 112 ¶ 2 rejection is warranted.

Several of the issues raised in paragraph 4 are a result of incorrect parsing of normal English sentences. For example, claim 79 does not recite “the service,” rather, it recites “the service routine.” The actual claim language has antecedent basis. The Appeal Conference confirmed that unconventional rules of grammar are not a permissible basis for a § 112 ¶ 2 rejection.

Applicant has reviewed the claims, and believes that they all meet the

The amendments to the claims are not narrowing. Further, Applicant does not concede that any rejection was properly raised. The amendments are made solely as an accommodation to the Examiner’s personal tastes, not for any reason relating to any substantive requirement of the patent law.

III. Claims 1-4, 5-32, 82 and 83

Claim 5 is discussed at ¶ 12 of the Office Action. Claim 5 recites as follows:

5. A method, comprising:

scheduling concurrent threads of control by a pre-existing thread scheduler of a computer, each thread having an associated context, an association between a thread and a set of computer resources of the associated context being maintained by the thread scheduler; and

without modifying the thread scheduler, maintaining an association between one of the threads and an extended context of the thread through a context change induced by the thread scheduler, the extended context including resources of the computer associated with the thread that are beyond those resources whose association with the thread is maintained by the thread scheduler.

The “Description of the Preferred Embodiments” section of Robinson ’095 (col. 6, line 56 to col. 90, line 12) is word-for-word identical to the Description of the Chernoff ’028 reference (col. 7, line 18 to col. 90, line 32), with the exception of a few isolated word substitutions and typographical changes. The Appeal Conference has already reviewed and reversed a number of the positions raised in the Office Action.

Claim 5 distinguishes the combination of Robinson ’095 and Bitar ’460 for the reasons discussed in Applicant’s paper of July 13, 2005, at pages 20-21. To summarize, Robinson ’095

discusses two entirely independent embodiments, an Alpha implementation in hardware and an X86 interpreter in software. Robinson's Alpha environment handles only Alpha context, and Robinson's X86 environment only handles X86 context. Robinson '095 deliberately avoids presenting any "extended context" that is "beyond" the capabilities of the "thread scheduler" to a "context change induced by the thread scheduler" as recited in claim 5.

Bitar '460, col. 5, lines 22-27, is not motivation to combine the designated portions of Bitar '460 and Robinson '095. At col. 5, lines 30-34, Bitar '460 states that col. 5, lines 22-27 of Bitar '460 are not applicable to the body of Bitar '460. Lines 22-27 cannot form "motivation to combine" the cited portions of Bitar '460 with the cited portions of Robinson '095.

Procedurally, the Office Action is silent on "reasonable expectation of success," in violation of MPEP § 2143.02. The MPEP test for obviousness states that "motivation to combine" and "reasonable expectation of success" are two distinct elements, both required – showing one does not constitute a showing of the other. MPEP §§ 2143, 2143.01 and 2143.02. Without the showings required by MPEP §§ 2143.01 and 2143.02, no *prima facie* rejection exists.

The Office Action further errs in being incomplete. In the prior art, schedulers and contexts had to be exactly tailored to match each other. The Office Action suggests that Bitar's scheduler can be combined willy-nilly with Robinson's contexts. The Office Action makes no showing that Bitar's specific scheduler could even theoretically be used with Robinson's specific contexts. A boilerplate showing that discontinuous portions of the references refer to non-specific principles of computer design is neither "motivation to combine" nor "reasonable expectation of success" with the specificity required. MPEP §§ 2143.01, 2143.02; *In re Lee*, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing motivation to modify/combine: "The need for specificity pervades this authority"); *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed," emphasis added).

Because the Office Action does not point to either reference to support a "thread scheduler" that performs a "context change" using an "extended context" that is "beyond" the

“thread scheduler,” and the Appeal Conference has previously determined that Robinson ’095 (in its exact duplicate, Chernoff ’028) does not do so, claim 5 is patentable.

Claim 1 recites similar language, a “pre-existing operating system” that works with “extended context” in a similar (but not identical) way. Claim 1 is patentable for similar reasons.

Claims 2-4, 6-32, 82, and 83 are dependent on claims 1 or 5, and are patentable therewith. They recite further limitations that further distinguish the art.

IV. Claims 1-4 and 33-55

Claim 33 is discussed in the context of Robinson ’095 alone at ¶ 3 of the Office Action.

Claim 33 recites as follows:

33. A method, comprising:

establishing an entry exception to be raised on entry to a computer operating system at a specified entry point or on a specified condition;

establishing a resumption exception to be raised on resumption from the operating system when such resumption is complementary to one of the specified entries;

on detecting a specified entry to the operating system from an interrupted process of the computer, raising and servicing the entry exception, and then entering the operating system to perform a service associated with the specified operating system entry; and

on detecting a complementary resumption, raising and servicing the resumption exception, and returning control to the interrupted process.

Claim 33 recites wrapping a conventional or pre-existing entry point of a computer operating system in a pair of additional exceptions: one to be raised on entry, one to be raised on resumption. One example embodiment can be seen in Fig. 3a of this application, by following arrows (7), (8), (9), (12), (13) and (14). In this example, when an interrupt occurs (388 of Fig. 3a), normally execution would trap into the operating system (306 of Fig. 3a). Instead, a second exception (arrow (7) of Fig. 3a, corresponding to the “entry exception” of claim 33) is raised. This causes control to be transferred to a handler (350 of Fig. 3a, corresponding to “servicing the entry exception” of claim 33). When that handler returns control (arrow (9) of Fig. 3a), typically the operating system handles the original interrupt. When the operating system executes its return of control instruction (arrow (12) of Fig. 3a, corresponding to “a complementary resumption” of claim 33), another exception (arrow (13) of Fig. 3a, corresponding to the

“resumption exception” of claim 33) is raised. This exception transfers control to a third handler (lower right corner of Fig. 3a, “servicing the resumption exception” of claim 33). The resumption exception handler returns control to the original thread (arrow (14) of Fig. 3a, corresponding to the “returning control to the interrupted process” of claim 33). Thus, a typical embodiment of claim 33 would involve three exceptions and associated handlers. See Figs. 3h, 3i and 3j.¹

The Office Action is unclear. Because it only designates “portions relied on” and does not designate particular elements of the reference or otherwise “clearly explain the pertinence,” as required by 37 C.F.R. § 1.104(c)(2), it is not clear how the Examiner proposes to match the references to the claim. (In contrast, note the parenthetical explanation in the Office Action’s discussion of claim 56 – which makes all the difference in the world.) No direct response is possible. Because there has been no attempt to meet the requirements of Rule 104, no rejection exists.

Nonetheless, in an effort to advance prosecution, Applicant observes as follows. As the Office Action itself concedes, at col. 33, lines 29-55 of Robinson ’028, when the handler completes, it “executes a return instruction to return control to its caller routine.” A smooth return using a “return instruction” is not an “exception.” Robinson ’095 col. 31, lines 9-38, and col. 26, lines 49-55 do not mention an exception that could correspond to the “resumption exception.”

Claim 33 distinguishes the art, and is therefore patentable.

Claims 1-4 and 34-55 either recite similar language, or are dependent on these claims, and are therefore patentable with claim 33. In addition, the dependent claims recite additional features that further distinguish the art.

V. Claims 1-4 and 56-78

Claim 56 is mentioned in ¶ 45 of the Office Action, in the context of Robinson ’095 combined with Fleck ’641. Claim 56 recites as follows:

56. A method, comprising:

¹ This comparison of the specification to the claim is not a limiting description of the invention or the claim; it is merely offered as a concrete preferred embodiment to assist in understanding the claim.

without modifying a pre-existing operating system of the computer, establishing an entry handler for execution at a specified entry point or on a specified entry condition to the operating system, the entry handler programmed to save a context of an interrupted thread and modify the thread context before delivering the modified thread context to the operating system;

without modifying the operating system, establishing an exit handler for execution on resumption from the operating system following an entry through the entry handler, the exit handler programmed to restore the context saved by a corresponding execution of the entry handler.

The “explanation of pertinence” provided in the parenthetical phrases of the Office Action is extremely helpful in understanding the Examiner’s position. Applicant respectfully urges that all future Office Actions include similar “explanations of pertinence,” at least for the independent claims, as required by 37 C.F.R. § 1.104(c)(2). Applicant’s attorney also respectfully observes that the quality of his own work is substantially improved by taking a moment or two to write things down, largely because it forces all parts of the position to be brought into consistency with each other – perhaps the same would apply to the Examiner.

The Office Action errs by mixing-and-matching unrelated portions of Robinson ’095, and inaccurately paraphrasing it. For example, Robinson ’028, col. 11, lines 10-20 describes translating “instructions.” Sixteen columns away, at col. 27 lines 1-15, Robinson ’095 describes “temporary storage for logical register manipulations.” However, the phrase presented in the Office Action, “translate from non-native to native or temporary storage for logical register manipulations” is not fairly attributable to Robinson ’028. The law requires that references are to be read “fairly.” *In re Schaub*, 950 F.2d 732 (Table), 1991 WL 252968 at **2, 1991 U.S. App. Lexis 28164 at *5 (Fed. Cir. Nov. 27, 1991) (non-precedential) (conclusions of anticipation can only be based on “a fair reading of the reference as a whole”).

The Office Action also fails to recognize the fundamental divide that Robinson always maintains: Robinson’s Alpha environment handles only Alpha context, and Robinson’s X86 environment only handles X86 context. There is no “translating from non-native to native” of anything other than instructions, contrary to the proposal in the Office Action. See paper of July 13, 2005, at pages 4-7.

Procedurally, the Office Action fails to make appropriate showings of “motivation to combine” or “reasonable expectation of success.” How could one apply the “hardware assisted”

techniques of Fleck '641 to the pure software interpreter discussed in the cited portions of Robinson '095 to achieve any meaningful result whatsoever? What would be the basis for “reasonable expectation of success?” Without the showings required by MPEP §§ 2143.01 and 2143.02, no *prima facie* rejection exists.

The Office Action is too procedurally incomplete and technologically garbled to raise a rejection, or to permit a direct response.

Claims 1-4 and 57-78 either recite similar language, or are dependent on claim 56, and are patentable therewith. In addition, these claims recite additional features that further distinguish the art.

VI. Claims 79-81

Claim 79 is discussed in the context of Robinson '028 alone at ¶ 11. Applicant notes that the portions of Robinson '098 cited now are not identically the portions of Chernoff '028 cited previously, but they are separated by only a few paragraphs, and discuss the same figures and stack entries.

Claim 79 recites as follows:

79. A method, comprising:

during invocation of a service routine of a computer, passing a linkage return address to the service routine at which to resume execution on completion of the service, the linkage return address being deliberately chosen so that an attempt to execute an instruction from the linkage return address on return from the service routine will raise a program execution exception;

on return from the service routine, attempting to execute the instruction at the linkage return address and raising the chosen exception; and

after servicing the exception, returning control to a caller of the service routine.

Claim 79 recites “the linkage return address being deliberately chosen so that an attempt to execute an instruction from the linkage return address on return from the service routine will raise a program execution exception.” The following paragraph states “attempting to execute the instruction at the linkage return address.” One example is discussed at § IV.H, at page 49-50 of the specification.

The first error in the Office Action is the failure to “clearly explain the pertinence” of the designated portions of the references, as required by 37 C.F.R. § 1.104(c)(2), for example, by

naming particular circuit elements of the references as corresponding to the elements of the claim.

The second error in the Office Action is that it takes no consistent position: though it is very difficult to discern the Examiner's position, it appears that the Office Action mixes the "native dynamic link," the "native return address," and the "non-native routine return address," inconsistently switching back and forth among the three. If this is not the Examiner's position, Applicant requests a clearer statement of that position. It would be extremely helpful if the Office Action designated names of particular elements of the reference that are thought to correspond to particular elements of the claims.

Without a clear and consistent statement of the Examiner's position, it is impossible to reply directly. For failure to comply with Rule 104(c)(2), no rejection exists.

Nonetheless, in order to advance prosecution, Applicant observes as follows.

The Office Action points to the "native dynamic link" or "dylnk" as corresponding to the "linkage return address." Robinson '095 describes the native dynamic link at col. 26, lines 56-60:

The fourth entry in the header 216a-216c is the native dynamic link 220d. The native dynamic link field is a pointer to the previous shadow frame header 214. Thus, in FIG. 22, the value stored in the field "dylnk" corresponds to the location of the next shadow frame header 216b.

The "dynamic link" is a pointer into a stack frame of data, not to an instruction whose execution is attempted.

The "native routine return address" is chosen so that execution may resume there, without raising an exception. Robinson '095, col. 26, lines 53-55.

The "non-native return address" is never executed directly in hardware, only in the software interpreter. Robinson '095, col. 25, line 62 to col. 26, line 13; col. 27, lines 16-24. Thus, execution is never "attempted" based on the "non-native return address" in a way that can "raise a program execution exception."

Thus, none of the three correspond to the "linkage return address" of claim 79.

No rejection exists, and claim 79 distinguishes the art, as best the Examiner's position can be understood.

Claims 80-81 are dependent on claim 79, and are patentable with independent claim 79. In addition, these dependent claims recite additional features that further distinguish the art.

VII. Conclusion

Applicant notes two consistent patterns of deficiency in Examiner Tang's work, and requests that future Office Actions comply with the relevant rules for examination.

First, references are compared to a few selected words of the claims, treated as discontinuous objects, not to the claim as a whole. This is not permitted. An Office Action must show that every element of a claim is shown in the prior art, "arranged as required by the claim." MPEP § 2131. Applicant respectfully suggests that prosecution will be brought to a close more quickly if the Examiner pays attention to the interrelationships and interconnections recited in the claims. Rejections should not be raised over references that lack corresponding interrelationships and interconnections. Office Actions must show that the references meet the interrelationships and interconnections recited in the claims.

Second, very few explanations of "pertinence" are set forth in Office Actions. 37 C.F.R. § 1.104(c)(2) requires two things: (a) that "particular portions" of references be designated, and (b) that a "clear" explanation of "pertinence" be provided. Examiner Tang's Office Actions consistently provide the first, but omit the second. As noted above, the small parenthetical in the Office Action's discussion of claim 56 was very helpful in understanding a position that would be unintelligible from mere designation of portions of the reference. Additional helpful explanations would include the designation by name or reference number of particular elements from the references.

Supervisory Examiner An specifically recommended an interview. If, after considering this response, any concern for allowance remains, Applicant respectfully requests that the Examiner telephone Applicant's undersigned counsel at the number noted below. An interview will be most productive if it occurs while the issues are fresh in the Examiner's mind.

In view of the amendments and remarks, Applicant respectfully submits that the claims are in condition for allowance. Applicant requests that the application be passed to issue in due course. In the event that an extension of time is required, Applicant petitions for that extension

of time required to make this response timely. Kindly charge any additional fee, or credit any surplus, to Deposit Account No. 23-2405, Order No. 114596-05-4013.

Respectfully submitted,

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Dated: December 30, 2005

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